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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/064,532

07/24/2002

John Jay Williams

122082

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05/26/2004

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EXAMINER

HANNAHER, CONSTANTINE

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/064,532

Applicant(s)

WILLIAMS ET AL.

Examiner

Constantine Hannaher

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20021028.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### Priority

1. The date to assert any priority to any earlier copending application by the same or overlapping inventors under 35 U.S.C. 120 passed on January 25, 2003. See 37 CFR 1.78(a)(2)(ii).

### Specification

2. The disclosure is objected to because of the following informalities: paragraph [0049], the view number should be --7--, not "6".

Appropriate correction is required.

### Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8, 9, and 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "the PMT detector" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 2 establishes only a PMT array. "PMT" should be replaced by --PET--.

Claim 11 recites the limitation "the at least one block" and many other such elements in line 2 and subsequent lines. There is insufficient antecedent basis for this limitation in the claim. These elements are established in claim 2, not claim 1.

The balance of the claims is rejected on the basis of their dependence.

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**Claim Rejections - 35 USC § 103**

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 14, 19, 24, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bertelsen (US006635878B2) in view of Levy *et al.* (US005384699A).

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With respect to independent claim 1, Bertelsen discloses a method for calibrating a gamma detector PMT gains in a detector unit **10** which would comprise the steps of conducting a calibration procedure **100**, determining whether a number of photons absorbed by a corresponding crystal exceeds a count threshold **82**, if the threshold is exceeded ("Y") repeating steps **100** and **82**, because the autopeaking in the method of Bertelsen is "a constantly recurring background process whenever the presence of an isotope is detected" (column 3, lines 40-41), and if the threshold is not exceeded ("N") ending the calibration procedure (waiting for a new histogram instead, column 4, lines 17-18).

Bertelsen does not describe use of the method for calibrating specifically PET detector PMT gains,

but as shown by Levy *et al.*, a PET detector has the same sort of PMTs (Fig. 4c) that the detector unit of Bertlesen has at 38 and it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that the PMTs in a PET detector are subject to the same drifts that the PMTs in the gamma detector of Bertelsen are, and to modify the method of Bertelsen to apply the method to calibrating the PMT gains in a PET detector.

With respect to independent claim 14, the method of Bertelsen as illustrated in Fig. 4 and modified by the suggestion of Levy *et al.* as explained in the rejection of claim 1 is sufficient to suggest to those of ordinary skill in the art at the time the invention was made an apparatus having the recited means within detector SBC 70.

With respect to independent claim 19, the method of Bertelsen as illustrated in Fig. 4 and modified by the suggestion of Levy *et al.* as explained in the rejection of claim 1 is sufficient to suggest to those of ordinary skill in the art at the time the invention was made that detector SBC 70 was a processor for performing a pulse sequencing program to perform the recited steps.

With respect to independent claim 24, the method of Bertelsen as illustrated in Fig. 4 and modified by the suggestion of Levy *et al.* as explained in the rejection of claim 1 is sufficient to suggest to those of ordinary skill in the art at the time the invention was made that multiplier 64 (Fig. 3b) serves as a compensator for separately adjusting received digital signals *e'* to compensate for PMT degradation (drift and other factors) and that step 100 calculates PMT signal adjustments within a calibrator 70 and the output of multiplier 64 is adjusted by the PMT signal adjustments stored in gain register 68, and that the calculation and adjustment steps are repeated during image acquisition until a number of photons absorbed by a corresponding crystal does not exceed a count threshold (a result of "N" for test 82).

With respect to dependent claim 25, the recited steps in the method of Bertelsen are performed simultaneously with image acquisition (a “constantly recurring background process”).

With respect to independent claim 26, the method of Bertelsen as illustrated in Fig. 4 and modified by the suggestion of Levy *et al.* as explained in the rejection of claim 1 is sufficient to suggest to those of ordinary skill in the art at the time the invention was made an imaging system comprising a scanner system (*e.g.*, Fig. 4a of Levy *et al.*), an image reconstruction processor (*e.g.*, element 28 of Bertelsen, Fig. 1), and ALC circuitry including a calibrator 70 for calculating gain adjustment of compensators 64 within the ALC circuitry, and further program signals for defining an executable program (Fig. 4 of Bertelsen) for repeating calculation of gain adjustment in the calibrator during image acquisition (a “constantly recurring background process”) performed by the scanner system.

### Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA-1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA-1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 2-13, 15-18, and 20-23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No.

6,624,422 in view of Bertelsen (US006635878B2) and Levy *et al.* (US005384699A). The patent claims

a specific calibration method and apparatus, see claims 1, 13, and 17. In view of the utility suggested by Bertelsen for a continually recurring background process maintaining a calibration during image acquisition, which would have been useful in a PET detector using PMTs as suggested by the combination with Levy *et al.*, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the specific calibration method and apparatus recited in the patent claims would be useful as a continually recurring background process having the steps 100 and 82 disclosed by Bertelsen.

### **Response to Submission(s)**

10. This application has been published as US2004/0016884A1 on January 29, 2004.

### **Conclusion**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (571) 272-2437. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2878

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Constantine Hannaher  
Primary Examiner